Reg. No. : | | | | | | | | | | |

Question Paper Code: 59501

B.E. / B.Tech. DEGREE EXAMINATION, DEC 2020

Elective

Electronics and Instrumentation Engineering

15UEI901– VLSI SYSTEM DESIGN

(Regulation 2015)

Duration: 1.15 hrs Maximum: 30 Marks

PART A - (6 x 1 = 6 Marks)

(Answer any six of the following questions)

1. Which technology has photo-electronic properties? CO1-R

   (a) GaAs (b) BiCMOs (c) CMOS (d) nMOS

2. Approximately how many numbers of transistors per chip is available in MSI CO1-R

   (a) 10-100 (b) 100-1,000 (c) 1,000-10,000 (d) > 10,000

3. In the design rules the implant layer has CO2-R

   (a) 2λ x 2λ (b) 4λ x 4λ (c) 6λ x 6λ (d) 8λ x 8λ

4. The ratio of pull-up to pull-down for an inverter directly driven by an inverter is CO2-R

   (a) 2/1 (b) 3/2 (c) 8/1 (d) 4/1

5. Precharge low circuits are slower to pull up than precharge high circuits are to pull down. This statement is _____. CO3-R

   (a) True (b) False (c) based on logic (d) based on clock

6. Barrel shifter requires _____ control lines. CO3-R

   (a) 2N (b) N^2 (c) $2N^2$ (d) N

7. The line connecting OR Plane and AND Plane in an NMOS PLA is called CO4-R

   (a) Product line (b) Sum line (c) Connector (d) Interconnection

8. PLA contains CO4-R

(a) AND and OR arrays (b) NAND and OR arrays

(c) NOT and AND arrays (d) NOR and OR arrays

9. _____ is used for local storage of temporary data, visible only inside a process. CO5-R

(a) Signal (b) Variable (c) Constant (d) Entity

10. The full form of VHDL is CO5-R

a)Very High Descriptive Language

(b)Very High Definition Language

(c)Variable Definition Language

(d) None of the Mentioned

PART – B (3 x 8= 24 Marks)

(Answer any three of the following questions)

11.	Discuss in detail about the modes of operation of MOS transistor with necessary equations.	CO1- U	(8)
12.	Determine the pull up to pull-down ratio of nMOS Inverter driven by another nMOS Inverter.	CO2 -U	(8)
13.	Design an 4 x 4 Barrel Shifter and explain its operation.	CO3- App	(8)
14.	What is programmable logic devices? Explain the different types of PLD in detail	CO4- App	(8)
15.	Explain in detail about the design procedure of RTL.	CO5- U	(8)

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